REMARKS

Applicants respectfully traverse and request reconsideration of the rejections under 35 U.S.C. §102, 103 of Claims 1, 3-25 and 27-44. For the reasons which follow, it is respectfully submitted that the Office has improperly construed the claims contrary to established legal authority, and that the cited prior art neither discloses nor teaches or suggests the claimed invention. Favorable reconsideration and withdrawal of the rejections are respectfully requested.

It Is Improper to Construe the Claimed Switch as Corresponding to Separate Physical Elements in the Prior Art

Underlying the rejection of all claims is the Office's construction of the claim term "storage switch" as corresponding to the combination of a plurality of separate and distinct devices disclosed in the published U.S. application of Guha, on the basis that the devices collectively are "one entity" that incorporates functionalities which Applicants' ascribe in their specification to the claimed storage switch, and which they admit are performed by conventional devices. The Office states (Office Action, page 8, paragraph 23) that because the "specification has (sic., not) clearly defined the physical boundary (e.g., in terms of chip, board, or chassis) of a storage switch", and because applicant admits that such "functions . . . are performed by other devices in conventional systems", the combined entities of Guha, which each individually perform one of the functions reads on the limitations in independent Claims 1 and 25.

It is submitted that it is legally improper and an error to construe the claimed term "storage switch" as corresponding to the combination of a plurality of separate

and distinct physical elements disclosed in the Guha reference. Such a construction of Applicant's claims is contrary to well-established legal authority. It fails to properly consider the teachings of the specification, other elements in the claims, as well as the understanding and meaning of the term "switch" to one of ordinary skill in the art.

<u>Legal Precedent Requires Claim Terms be Interpreted as They Would Be By One of Ordinary Skill in the Art</u>

There is a large body of established legal precedent which governs the construction of claims, some of which is summarized in MPEP §2111 that provides guidance to Examiners in construing claims. As pointed out in the MPEP, the words of a claim must be read in the light of the specification and as they would be interpreted by those of ordinary skilled in the art. (See *In re Cortright*, 165 F.3d 1353, 1358, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999) "although the PTO must give claims their broadest reasonable interpretation, this interpretation must also be consistent with the one that those skilled in the art would reach", citing *In re Morris* 127 F.3d 1048, 1054, 1056, 44 U.S.P.Q.2d 1023, 1029 (Fed. Cir. 1997)). Moreover, prior art references may be indicative of what those skilled in the art generally believe a certain term means, and can often help to demonstrate how a term is used by those skilled in the art. Accordingly, the PTO's interpretation of claim terms should not be so broad that it conflicts with the meaning given to identical terms in other patents from analogous art (*Cortright, supra,* 1358).

The legal authority, as well as the MPEP, make it clear that the Office while giving claims their broadest reasonable interpretation is still constrained to interpret

claims as they would be by one of ordinary skilled in the art and in the light of the specification. This later requirement does not mean that it is permissible to read limitations into claims from the specification, but it does mean that claim terms must be interpreted in the context of the specification. The Office has failed to follow these legal requirements in interpreting Applicant's claims, and in particular, by improperly interpreting the term "storage switch" to correspond to the combination of a plurality of separate and discrete elements shown in the prior art reference to Guha.

The Specification Uses the Term Storage Switch as it is Understood by One Skilled in the Art

This specification describes the invention in the context of a storage network, and in particular in the context of a storage area network (SAN). As described in the specification, a conventional storage network of the type with which the invention is employed comprises a plurality of servers connected to a plurality of storage devices through other devices comprising "storage switches", such as Fibre Channel switches and appliances (see pps. 3-5, Figure 1). The Fibre Channel switches and the appliances are controlled by storage managers in order to provide storage services. These elements are all, as is well know in the art, are unitary structural devices and are described as devices in the specification. Guha, the primary reference relied upon by the Office for its rejection, shows in Figures 4 and 6 and describes a similar conventional storage network to that shown in Figure 1 and described in Applicants' specification, as comprising a plurality of discrete devices including servers 39, 40 and 41 connected to storage devices 44 via a SAN switch 42, and controlled by a content controller 36. Throughout his specification, Guha refers to these conventional

elements as devices, and is evidence of the ordinary and customary meaning ascribed to switches by those skilled in the art.

As described in Applicant's specification, a key feature of the invention is to replace a conventional storage switch, such as shown in Figure 1, with the intelligent storage switch of the invention that performs the functions previously performed by the separate storage switches, appliances, and gateway of conventional storage networks, and to incorporate into the intelligent storage switch additional functions performed by other "devices" in conventional systems, such as quality of service. (See specification, page 9, paragraphs [0024]-[0026]). This specification analogizes the claimed intelligent storage switch to a conventional SAN storage switch, but describes the switch of the invention as being improved and enhanced in its performance over conventional devices by performing functions not previously performed by storage switches in conventional storage networks (Specification, pages 9-10, paragraphs [0024] – [0026]). The specification describes (pages 7-9, paragraphs [0018] – [0023]) and illustrates in Figures 2-4 several embodiments of simplified storage networks made possible using storage switches in accordance with the invention, and describes and illustrates the storage switch of the invention in terms of its structure (Specification pages 11 – 13, paragraphs [0029] – [0035], Figure 5) and in the context of a unitary structural entity or device as comprising line cards, fabric cards, and system control cards. This usage of the term "storage switch" is consistent with the context, understanding and meaning of the term "storage switch" by those skilled in the art. However, the specification distinguishes the switch of the invention from

conventional switches by its incorporation of intelligence to permit it to perform functions previously incapable of being performed by conventional switches. Thus, contrary to the Office's assertion, the specification does describe the storage switch in terms of its physical structure.

Other evidence of the meaning of the term "storage switch" as connoting a device that interconnects servers and storage devices in a storage network and performs switching functions, as that term is used and understood by those skilled in the art, is shown by the attached Exhibits A-D which illustrate both the definition and the meaning of "storage switch" to those of ordinary skill in the art. These Exhibits, comprise:

> Exhibit A: Bird, D., "Network Storage- the Basics", Enterprise Storage Forum Technology Article, www.enterprisestorageforum.com/technology/features/articles.htm, January 2, 2002

> Exhibit B: Bird, D., "Network Storage- Storage Area Networks", Enterprise Storage Forum Technology Article, www.enterprisestorageforum.com/technology/features/ articles.htm, February 26, 2002

> Exhibit C: Answers.com, definition of "Storage Switch", Information from Answers.com, www.answers.com/topic/storage-switch?hi=fibre&hi=ch . . .

> Exhibit D: Answers.com, definition of "Fibre Channel Switch", Information from Answers.com, www.answers.com/topic/fibre-channel-switch?hi=storag . . .

Exhibits A and B are white papers that describe storage networks and devices, including switches. They clearly describe the switch as a device. Exhibit A describes SANs as "using special switches as a mechanism for connecting devices" which "look a lot like a normal Ethernet networking switch" (page 2). Exhibit B refers to a Fibre

Channel switch "which performs the same basic function as a switch on an Ethernet network, in that it acts as a connectivity point for the devices" (page 2). Exhibit C defines "storage switch" as a device that routes data between servers and disk arrays in a SAN, and notes that the term typically refers to a Fibre Channel switch. And, Exhibit D defines a "Fibre Channel switch" as a computer storage device.

These Exhibits are clear evidence which demonstrates that as understood by those of ordinary skilled in the art, a "storage switch" comprises a device, i.e., a physical element, which performs switching and perhaps other functions in a storage network. It is not understood by those skilled in the art to be a combination of separate, discrete entities which collectively perform functions performed by the switch of the invention, as asserted by the Office in its rejection.

Guha, the primary reference relied upon by the Office in its rejection, underscores this use and meaning of the term storage switch as being a device. As noted above, Guha illustrates a SAN switch 42 connecting servers and storage devices, and describes the function of the network storage switch 42 as permitting communication between the servers and the storage devices (see page 5, paragraph [0063]). Moreover, Guha discloses an entirely separate QoS enforcer 34, a device, that functions to provide quality of service, and discloses that it communicates through a separate layer 4 switch 38, also a device, with the servers.

The Office's Interpretation of Storage Switch as a Combination of Separate Discrete Devices is Improper

In rejecting Claim 1, the Office asserted that the separate discrete devices of Guha 36 (content controller), 34 (QoS enforcer), 38 (layer 4 switch) and 42 (SAN switch) together constitute "an entity" that corresponds to applicant's "storage switch" (Office Action page 8, paragraph 23). This interpretation is contrary to both the specification and to the meaning of "switch" to those skilled in the art, as demonstrated above. The term storage switch cannot be read as corresponding to a combination of the separate physical devices disclosed by Guha simply because the "specification has clearly defined (sic. not) the physical boundary (e.g., in terms of chip, board or chassis) of a storage switch", and because the "cited entity" comprising the separate devices 34, 36, 38 and 42 of Guha incorporates the functionalities of the switch as described in the specification, as asserted by the Office. It is improper to construe a claim element reciting a device that performs different functions as anticipated by a combination of a plurality of separate devices that perform such functions.

It is true, as asserted by the Office that applicant describes (at paragraph [0024]) that the storage switch of the invention may include the functions of switch, appliance, and gateway, as well as additional functions such as load balancing and quality of service which are conventionally performed by other devices in conventional storage systems. This does not permit the Office to ignore the meaning of the term "storage switch" as being a device as understood by those of ordinary skill in the art and as used in the specification, and to construe this term as corresponding to a

plurality of separate and discrete elements shown in Guha. A storage switch is a device, as demonstrated by above, not a collection of separate entities as asserted by the Office.

Since all rejections of the claims are based upon the improper construction of storage switch as corresponding to a combination of different entities, they are also improper and should be withdrawn.

The Rejections Under 35 U.S.C. §102

Claim 1 is directed to a method for use in a storage network, where a storage switch provides quality of service to at least one initiator for accessing at least one storage device in the storage network. Guha does not disclose a storage switch which performs this function. The SAN switch 42 of Guha is a conventional storage switch, as that term is ordinarily used and understood by those of ordinary skill in the art. It, however, is not equivalent to the claimed switch. The SAN switch of Guha does not provide quality of service. Rather, as admitted by the Office, there is a separate device 34 (QoS Enforcer) in Guha which performs this function through a layer 4 switch 38 and a content controller 36. The reference does not teach or suggest that the switch itself provides quality of service, as claimed. Accordingly, Guha cannot anticipate Claim 1. Moreover, there is no suggestion or teaching in Guha or the other cited prior art of combining the discrete QoS function performed by device 34 into a storage switch, such as claimed. Accordingly, Guha also cannot render Claim 1 obvious.

As to Claims 25 and 27, Guha does not disclose or suggest a switch that comprises a bandwidth controller that includes a processor, a traffic manager and a buffer, as asserted by the Office in its rejection. For the same reasons discussed above in connection with Claim 1, it is improper to lump the functionalities of elements 34-40 of Guha together and construe these separate devices to be a switch, as claimed. Moreover, there is no disclosure or suggestion any place in Guha of a bandwidth controller, regardless of whether Guha discloses elements which may have components such as a processor, a traffic manager and buffer. Nothing in Guha discloses that these elements control bandwidth. Accordingly, reconsideration of rejection of Claims 25 and 27 as anticipated by Guha is also respectfully requested.

As to Claims 30, 33, and 35-37, it is respectfully submitted that the rejection of these claims as anticipated by Guha is also improper. These claims were rejected for the same reasons Claims 1, 25 and 27 were rejected by combining the separate elements of Guha and interpreting the combination to correspond to a switch. Reading the claim term switch to correspond to separate discrete elements is improper for the reasons discussed above. Accordingly, reconsideration and withdrawal of the rejection of these claims is also requested.

The Rejections Under 35 U.S.C. §103

Reconsideration of the rejections of Claims 3-24, 29, 31-34 and 38-44 is requested. Independent method Claims 9, 16 and 22 set forth methods for use in a storage network that are performed by a storage switch. Independent Claims 25, 30,

33, 37 and 38 are directed to a switch, a storage network and to a machine readable media that controls a storage switch. There is no teaching or suggestion in either Guha or Choudhury (U.S. Pat. No. 5,719,854) of a storage switch in a storage network that embodies the elements or performs the functions set out in these claims. All claims require that the recited elements or functions of the claim be within or be performed by a switch. There is no teaching or suggestion in any of the prior art of a storage switch embodying the claimed elements or performing the claimed functions. For the reasons pointed out above, it is improper to construe the claim term switch as corresponding to separate physical devices in the prior art, and nothing in the cited references teaches or suggests combining the functions performed by such separate devices into a storage switch.
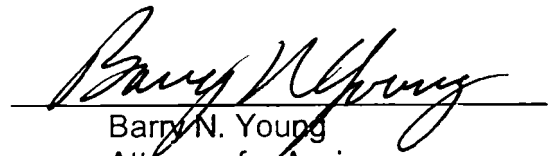
As noted above, an important aspect of the claimed invention is providing an intelligent switch for use in a storage network that incorporates into the switch device elements that perform functions conventionally found in and performed by separate and discrete switches and appliances in conventional storage networks. Even assuming that Guha and Choudhury can be combined, as asserted by the Office, the combination still fails to teach or suggest to one of ordinary skill in the art a storage switch embodying either the claimed elements or performing the claimed functions. Choudhury discloses particular techniques for controlling admission to a shared resource. The logical combination of Guha and Choudhury would be to incorporate the specific functions disclosed by Choudhury, such as controlling the number of concurrent requests, bounding requests in accordance with QoS agreements, etc., *into*

the separate devices 34, 36 and 38 of Guha, not to incorporate them into the SAN switch. There is also no motivation to do so. Even accepting, for purposes of argument, that the Office's asserted motivation to combine the references is correct, that motivation would lead one of ordinary skill in the art to combine the elements and functions disclosed by Choudhury into the various separate devices of Guha that perform similar functions. There is no teaching or suggestion in either of the references of combining the various elements and functions disclosed by the references into a switch, as claimed. Such a suggestion is found only in the hindsight provided by the teachings of applicant's specification. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §103 is also respectfully requested.

In view of the foregoing, it is submitted that the cited prior art can neither anticipate nor render obvious the claimed invention. Accordingly, favorable reconsideration of this application and withdrawal of the rejections is respectfully requested.

Dated: March 31, 2006   Respectfully Submitted,

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